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CLAIMS

1. A method of transmission power control characterized in that oscillation in an uncompensated transmission power level corresponding to an established transmission power control command sequence is detected and the established transmission power control command sequence is compensated for the oscillation in the uncompensated transmission power level, the compensation comprising injection of a compensating sequence to, or blocking of one or more frequency components of, the established transmission power control command sequence.

2. The method according to claim 1 characterized in that the compensation comprises injection of a compensating sequence to the established transmission power control command sequence thereby forming a compensated transmission power control command sequence.

3. The method according to claim 2 characterized in that the compensating sequence is generated in a neural network.

4. The method according to claim 3 characterized in that the compensating sequence is generated by means of back-propagation.

5. The method according to claim 2 characterized in that the compensating sequence is generated by concatenating one or more pre-defined sequences.

6. The method according to claim 2 characterized in that the compensating sequence is generated by concatenating one or more pseudo-random sequences.

7. The method according to claim 2 characterized in that the compensated transmission power control is achieved

by adding modulo-2 of a compensating sequence to the established transmission power control command sequence.

8. The method according to claim 7 c h a r a c t e r i z e d i n that the sequences' one or more components are either 0 or 1, or a multiple thereof.

9. The method according to claim 2 c h a r a c t e r i z e d i n that the compensated transmission power control is achieved by component-wise multiplication of a compensating sequence to the established transmission power control command sequence.

10. The method according to claim 9 c h a r a c t e r i z e d i n that the sequences' one or more components are either +1 or -1, or a multiple thereof.

11. The method according to claim 1 c h a r a c t e r i z e d i n that the compensation comprises blocking of one or more frequency components of the established transmission power control command sequence thereby forming a compensated transmission power control command sequence.

12. The method according to claim 11 c h a r a c t e r - i z e d i n that the blocking is achieved by means of filtering.

13. The method according to claim 12 c h a r a c t e r - i z e d i n that one or more transmission power control command components representing one or more frequencies greater than the oscillation frequency of the oscillations in the corresponding transmission power level are filtered out, entirely or partially if power of frequency components above the oscillation frequency are greater than power of frequency components below, and that one or more transmission power control command components representing one or more frequencies essentially equal to the oscillation frequency are filtered out essentially entirely.

14. The method according to claim 12 c h a r a c t e r - i z e d i n that one or more transmission power control command components representing one or more frequencies essentially equal to the oscillation frequency of the oscillations in the corresponding transmission power level are filtered out, essentially entirely, if power of frequency components below the oscillation frequency are greater than power of frequency components above.

15. The method according to claim 11 c h a r a c t e r - i z e d i n that the blocking is achieved by means of canceling frequency transform coefficients of a frequency transformed signal.

16. The method according to claim 11 c h a r a c t e r - i z e d i n that one or more frequency components below a frequency threshold are blocked.

17. The method according to claim 16 c h a r a c t e r - i z e d i n that one or more frequency components of energy larger than energy of frequency content above the threshold are blocked.

18. The method according to claim 16 or 17 c h a r a c t e r - i z e d i n that the frequency threshold is set essentially equal to the oscillation frequency.

19. The method according to any of claims 1-18 c h a r a c - t e r i z e d i n that oscillation is detected by means of frequency analysis.

20. The method according to any of claims 1-18 c h a r a c - t e r i z e d i n that loop delay is estimated in relation to oscillation cycle time.

21. The method according to claim 20 characterized in that loop delay is estimated to be essentially equal to one fourth of the cycle time.

22. The method according to any of claims 1-18 characterized in that identified oscillation is compensated until number of identical transmission power control commands of the established transmission power control command sequence exceeds a threshold.

23. The method according to claim 22 characterized in that the threshold corresponds to essentially four times the loop delay.

24. The method according to any of claims 1-18 characterized in that oscillations of one or more radio links, for which transmission power level and cell interference are correlated to a greater extent than indicated by a predefined threshold, are compensated for.

25. The method according to any of claims 1-18 characterized in that the oscillations are compensated at the receiver.

26. The method according to claim 25 characterized in that the receiver is a radio base station, or is included in or connected to a radio base station.

27. The method according to claim 25 characterized in that the receiver is a mobile station, or is included in or connected to a mobile station.

28. The method according to any of claims 1-18 characterized in that the oscillations are compensated at the transmitter.

29. The method according to claim 28 characterized in that the transmitter compensates received respective transmission power control commands of different mobile stations adjusted for its peak transmission power capacity.

30. The method according to claim 28 or 29 characterized in that the transmitter is a radio base station, or is included in or connected to a radio base station.

31. The method according to claim 28 characterized in that the transmitter is a mobile station, or is included in or connected to a mobile station.

32. A device of transmission power control characterized by the device comprising an oscillation detector and oscillation compensating means, compensating for oscillations as detected in corresponding uncompensated commanded transmission power level of one or more established transmission power control command sequences, the compensating means injecting a compensating sequence to, or blocking one or more frequency components of, the established transmission power control command sequence.

33. The device according to claim 32 characterized by the compensating means comprising a processing element performing component-wise algebraic operations on a compensating sequence and the established transmission power control command sequence thereby forming a compensated transmission power control command sequence.

34. The device according to claim 33 characterized by a neural network for generating the compensating sequence.

35. The device according to claim 34 c h a r a c t e r - i z e d b y the neural network comprising a back-propagation arrangement.

36. The device according to claim 33 c h a r a c t e r - i z e d b y means for concatenating one or more pre-defined sequences for generating the compensating sequence.

37. The device according to claim 33 c h a r a c t e r - i z e d b y a pseudo-random number generator generating the compensating sequence in whole or part.

38. The device according to claim 33 c h a r a c t e r - i z e d b y the processing element performing component-wise algebraic operations being a modulo-2 adder, component-wise adding a compensating sequence to the established transmission power control command sequence.

39. The device according to claim 38 c h a r a c t e r - i z e d i n that the added sequences' one or more components are either 0 or 1, or a multiple thereof.

40. The device according to claim 33 c h a r a c t e r - i z e d b y the processing element performing component-wise algebraic operations being a multiplier, component-wise multiplying a compensating sequence and the established transmission power control command sequence.

41. The device according to claim 40 c h a r a c t e r - i z e d i n that the sequences' one or more components are either +1 or -1, or a multiple thereof.

42. The device according to claim 32 c h a r a c t e r - i z e d b y the compensating means comprising a processing element blocking one or more frequency components of the established transmission power control command sequence

thereby forming a compensated transmission power control command sequence.

43. The device according to claim 42 c h a r a c t e r - i z e d b y the compensating means comprising a processing element blocking one or more frequency components being a filter.

44. The device according to claim 43 c h a r a c t e r - i z e d i n that one or more transmission power control command components representing one or more frequencies greater than the oscillation frequency of the oscillations in the corresponding transmission power level are filtered out, entirely or partially if power of frequency components above the oscillation frequency are greater than power of frequency components below, and that one or more transmission power control command components representing one or more frequencies essentially equal to the oscillation frequency are filtered out essentially entirely.

45. The device according to claim 43 c h a r a c t e r - i z e d i n that one or more transmission power control command components representing one or more frequencies essentially equal to the oscillation frequency of the oscillations in the corresponding transmission power level are filtered out, essentially entirely, if power of frequency components below the oscillation frequency are greater than power of frequency components above.

46. The device according to claim 42 c h a r a c t e r - i z e d b y the processing element comprising a frequency transformation entity and blocking being achieved by means of canceling frequency transform coefficients of a frequency transformed signal.

47. The device according to claim 42 characterized by the processing element blocking as present one or more frequency components below a frequency threshold.

48. The device according to claim 47 characterized by the processing element blocking as present one or more frequency components of energy larger than energy of frequency content above the threshold.

49. The device according to claim 47 or 48 characterized in that the frequency threshold is set equal to the oscillation frequency.

50. The device according to any of claims 32-48 characterized in that oscillation is detected by means of frequency analysis.

51. The device according to any of claims 32-48 characterized in that loop delay is estimated in relation to oscillation cycle time.

52. The device according to claim 51 characterized in that loop delay is estimated to be essentially equal to one fourth of the cycle time.

53. The device according to any of claims 32-48 characterized in that it compensates for an identified oscillation until number of identical transmission power control commands of the established transmission power control command sequence exceeds a threshold.

54. The device according to claim 53 characterized in that the threshold corresponds to essentially four times the loop delay.

55. The device according to any of claims 32-48 characterized in that oscillations of one or more radio links,

for which transmission power level and cell interference are correlated to a greater extent than indicated by a predefined threshold, are compensated for.

56. The device according to any of claims 32-48 c h a r a c - t e r i z e d i n that it is a device of a receiver, being destined for the power controlled transmissions.

57. The device according to claim 56 c h a r a c t e r - i z e d i n that the receiver is a radio base station, or is included in or connected to a radio base station.

58. The device according to claim 56 c h a r a c t e r - i z e d i n that the receiver is a mobile station, or is included in or connected to a mobile station.

59. The device according to any of claims 32-48 c h a r a c - t e r i z e d i n that it is a device of a transmitter, sending the power controlled transmissions.

60. The device according to claim 59 c h a r a c t e r - i z e d b y the transmitter oscillation compensating means compensating for oscillations in received respective transmission power control commands of different mobile stations adjusted for its peak transmission power capacity.

61. The device according to claim 59 c h a r a c t e r - i z e d i n that the transmitter is a radio base station, or is included in or connected to a radio base station.

62. The device according to claim 59 c h a r a c t e r - i z e d i n that the transmitter is a mobile station, or is included in or connected to a mobile station.

63. Radio communication system c h a r a c t e r i z e d b y means for carrying out the method in any of claims 1-27.

64. Radio communication system characterized by a plurality of devices in any of claims 32–62.